AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A multilayer wiring board, comprising:

a metal substrate having first and second main surfaces;

a copper coating applied to at least one of the first and second main surfaces of the metal substrate and having a roughened surface; and

an insulating resin layer formed on the roughened surface of the copper coating,

wherein the roughened surface of the copper coating has an arithmetic mean roughness Ra of 0.1 to 10 μm.

2. (original): The multilayer wiring board according to Claim 1, further comprising:

a wiring layer arranged on the insulating resin layer; and

a via extending through the insulating resin layer between the copper coating and the wiring layer.

3. (original): The multilayer wiring board according to Claim 1, wherein the copper coating has a thickness smaller than that of the metal substrate.

4. (original): The multilayer wiring board according to Claim 1, wherein the copper coating is a copper plating.

5. (canceled).

6. (currently amended): The multilayer wiring board according to Claim 1, wherein the metal substrate is a rolled plate of metal or metal alloy having a thickness of ~~having a thickness of~~ 150 μm or larger.

7. (original): The multilayer wiring board according to Claim 1, further comprising an undercoat layer between the metal substrate and the copper coating, the undercoat layer being made of either one of nickel, cobalt and chrome and having a thickness smaller than that of the copper coating.

8. (currently amended): A multilayer resin wiring board, comprising:

a metal substrate having first and second main surfaces and defining therein a through hole extending between the first and second main surfaces;

a copper coating applied to the first and second main surfaces of the metal substrate and an inner surface of the through hole and having a roughened surface;

a plurality of insulating resin layers and wiring layers formed on the roughened surface of the copper coating to be located on the first and second main surfaces of the metal substrate, the insulating resin layers being interposed between the copper coating and the wiring layers or between the copper coating and the wiring layers and between the wiring layers;

a resin filler filled in the through hole;

a first via extending through the insulating resin layer between the copper coating and the wiring layer; and

a second via extending through the resin filler and the insulating resin layers between the wiring layer located on the first main surface and the wiring layer located on the second main surface while being kept insulated from the metal substrate,

wherein the roughened surface of the copper coating has an arithmetic mean roughness Ra of 0.1 to 10 μm.

9. (original): The multilayer wiring board according to Claim 8, wherein the copper coating has a thickness smaller than that of the metal substrate.

10. (original): The multilayer wiring board according to Claim 8, wherein the copper coating is a copper plating.

11. (canceled).

12. (original): The multilayer wiring board according to Claim 8, wherein the metal substrate is a rolled plate of metal or metal alloy having a thickness of 150 μm or larger.

13. (withdrawn): The multilayer wiring board according to Claim 8, further comprising an undercoat layer between the metal substrate and the copper coating, the undercoat layer being made of either one of nickel, cobalt and chrome and having a thickness smaller than that of the copper coating.

14. (currently amended-withdrawn): A method of manufacturing a multilayer wiring board, said multilayer wiring board comprising a metal substrate having first and second main surfaces;

a copper coating applied to at least one of the first and second main surfaces of the metal substrate and having a roughened surface; and

an insulating resin layer formed on the roughened surface of the copper coating,

wherein the roughened surface of the copper coating has an arithmetic mean roughness Ra of 0.1 to 10 μm,

said method comprising:

preparing a metal substrate having first and second main surfaces;

applying a copper coating to at least one of the first and second main surfaces of the metal substrate;

surface roughening the copper coating to form a roughened surface on the copper coating in such a manner that the roughened surface of the copper coating has an arithmetic mean roughness Ra of 0.1 to 10 μm;

forming an insulating resin layer to the roughened surface of the copper coating; and

arranging a wiring layer on the insulating resin layer.

15. (withdrawn): The method according to Claim 14, wherein the copper coating is formed by copper plating.

16. (withdrawn): The method according to Claim 14, wherein the copper coating has a thickness of 10 μm or larger before the surface roughening, and has a thickness of 5 μm or larger after the surface roughening.

17. (currently amended-withdrawn): A method of manufacturing a multilayer resin wiring board, ~~further~~ said multilayer resin wiring board comprising

a metal substrate having first and second main surfaces and defining therein a through hole extending between the first and second main surfaces;

a copper coating applied to the first and second main surfaces of the metal substrate and an inner surface of the through hole and having a roughened surface;

a plurality of insulating resin layers and wiring layers formed on the roughened surface of the copper coating to be located on the first and second main surfaces of the metal substrate, the insulating resin layers being interposed between the copper coating and the wiring layers or between the copper coating and the wiring layers and between the wiring layers;

a resin filler filled in the through hole;

a first via extending through the insulating resin layer between the copper coating and the wiring layer; and

a second via extending through the resin filler and the insulating resin layers between the wiring layer located on the first main surface and the wiring layer located on the second main surface while being kept insulated from the metal substrate,

wherein the roughened surface of the copper coating has an arithmetic mean roughness Ra of 0.1 to 10 μm

said method comprising:

preparing a metal substrate having first and second main surfaces;

defining a through hole in the metal substrate;

plating the metal substrate with copper to apply a copper coating to the first and second main surfaces of the metal substrate and an inner surface of the through hole;

surface roughening the copper coating to form a roughened surface on the copper coating in such a manner that the roughened surface of the copper coating has an arithmetic mean roughness Ra of 0.1 to 10 μm;

forming insulating resin layers on the roughened surface of the copper coating so as to be located on both the first and second main surfaces of the metal substrate;

arranging wiring layers on the respective insulating resin layers;

filling a resin filler in the through hole;

providing a first via extending through the insulating resin layer between the copper coating and the wiring layer; and

providing a second via extending through the resin filler and the insulating resin layers between the wiring layer located on the first main surface and the wiring layer located on the second main surface while being kept insulated from the metal substrate.

18. (withdrawn): The method according to Claim 17, said defining comprising:

forming a mask on the metal substrate in a predetermined pattern;

after said mask forming, photoetching the metal substrate from both the first and second main surfaces to thereby define the through hole; and

removing the mask after said photoetching,

wherein said plating is done by electroplating after said removing, and said filling is done simultaneously with forming the insulating resin layers on the copper coating.

19. (withdrawn): The method according to Claim 17, wherein the copper coating has a thickness of 10 μm or larger before the surface roughening, and has a thickness of 5 μm or larger after the surface roughening.

20. (currently amended): A substrate material for a multilayer wiring board, comprising:

a metal substrate being a rolled plate of Fe-Ni alloy formed with a thickness of 150 μm or larger and having first and second main surfaces; and

a copper coating applied to at least one of the first and second main surfaces of the metal substrate, having a roughened surface and being formed with a thickness of 5 μm or larger,

wherein the roughened surface of the copper coating has an arithmetic mean roughness Ra of 0.1 to 10 μm.

21. (canceled).

22. (currently amended): A substrate material for a multilayer wiring board, comprising:

a metal substrate being a rolled plate of Fe-Ni alloy formed with a thickness of 150 μm or larger, having first and second main surfaces and defining therein a through hole extending between the first and second main surfaces; and

a copper coating applied to the first and second main surfaces of the metal substrate and an inner surface of the through hole and having a roughened surface,

wherein the roughened surface of the copper coating has an arithmetic mean roughness Ra of 0.1 to 10 μm.

23. (canceled).